Citation:

French SA, Harnack L, Jeffery RW. Fast food restaurant use among women in the Pound of Prevention study: Dietary, behavioral and demographic correlates. *Int J Obes Relat Metab Disord.* 2000 Oct; 24 (10): 1,353-1,359.

PubMed ID: 11093299

Study Design:

Prospective cohort study

Class:

B - Click here for explanation of classification scheme.

Research Design and Implementation Rating:

POSITIVE: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To examine demographic, behavioral and dietary correlates of frequency of fast food restaurant use in a community-based sample of adult women.

Inclusion Criteria:

- Ages 20 to 45 years
- Not currently pregnant or pregnant within the past year
- Free from serious disease
- Willing to participate for three years.

Exclusion Criteria:

- Women who became pregnant
- Men
- Those without data from the third annual follow-up.

Description of Study Protocol:

Recruitment

Subjects were volunteers recruited from the community using newspaper ads, radio public service announcements and direct mail.

Design

- Subjects were from the Pound of Prevention Study, which is a randomized controlled trial in a community-based setting aimed at using mail-based intervention to encourage healthy eating and exercise
- The data use for the present study is for all subjects combined and uses prospective data

from the entire cohort.

Dietary Intake/Dietary Assessment Methodology

Dietary intake during the past year was measured annually using the 60-item block food-frequency questionnaire (FFQ).

Intervention

- Participants were randomized to a mail-based intervention or a no-contact control group
- Intervention consisted of monthly mailed newsletters with return postcards and periodic opportunities to take part in additional eating and exercise programs. Intervention continued for three years with annual clinic visits to assess body weight, dietary intake and eating and exercise behaviors
- Data for the analyses reported in this study are for intervention and control subjects combined.

Statistical Analysis

- To examine cross-sectional associations between frequency of fast food restaurant use and demographic, behavioral and dietary variables, frequency of fast food restaurant use was categorized into terciles. PROC GLM was used for continuous dependent variables in univariate analyses in which tercile of frequency of fast food restaurant use was the independent variable. Chi-square analyses were used for categorical variables. Total energy intake was included as a covariate in analyses of dietary intake variables
- Associations between changes in frequency of fast food restaurant use and changes in dietary intake were examined with PROC GLM, in which the follow-up values of the food group was used as the dependent variable and the baseline value was a covariate
- P-values were considered significant at $P<0.05$.

Data Collection Summary:

Timing of Measurements

Measurements were completed at baseline and annually for three years.

Dependent Variables

- Dietary intake was measured using the 60-item Block FFQ
- Weight and height were measured by study personnel and BMI was calculated
- Low-fat eating behaviors were measured using an 18-item scale that assessed five theoretically-based dimensions of eating behavior.

Independent Variables

Frequency of fast food restaurant use was estimated with the question, "About how many meals per week do you eat from fast food restaurants?"

Control Variables

- Demographic variables were self-reported and included
    - Age in years
    - Current marital status

    - Educational attainment
    - Income
    - Ethnic identification
    - Employment status
    - Number of children
- Smoking behavior was self-reported
- Physical activity was measuring using a questionnaire
- Restrained eating was measured using the Cognitive Restraint subscale of Stunkard and Messick's Three Factor Eating Questionnaire.

Description of Actual Data Sample:

- *Initial N:* 998 women
- *Attrition (final N):* 891
- *Age:* 35 years
- *Ethnicity:* 86% were white
- *Other relevant demographics:*
    - 45% were currently married
    - 46% had college degrees
    - 60% reported a yearly family income of more than $25,000
- *Anthropometrics:* Average weight was 72.8kg, and average BMI was 27kg/m^2
- *Location:* United States.

Summary of Results:

Prevalence of Fast Food Restaurant Use and Trends over Three Years

- 24% reported that they ate on average zero times per week at fast food restaurants, while 39% reported one visit per week, 16% reported two visits and 21% reported three or more visits to a fast food restaurant per week. This distribution was fairly consistent at each year of follow-up
- About 8% of subjects in the lowest tercile moved into the highest tercile by year three and 8% of those in the highest tercile moved into the lowest tercile by year three. Twenty-seven percent of subjects decreased their fast food restaurant visits by one or more meals per week, while 26.4% increased their fast food restaurant visits by one or more meals per week.

Cross-sectional Demographic, Behavioral and Dietary Correlates of Fast Food Restaurant Use

- More frequent fast food restaurant use was significantly associated with younger age, being unmarried, lower income, non-White ethnicity, heavier body weight and higher BMI
- Those in the highest tercile of fast food frequency also had the largest percentage of women in low incomes and were more likely to be unemployed
- Measures of restrained eating and low-fat eating behaviors were inversely related to frequency of fast food restaurant use
- Televisions viewing was highest in the highest frequency tercile of fast food restaurant use
- Smoking and physical activity were not associated with fast food frequency
- Total energy intake and percentage of energy from fat were positively associated with frequency of fast food intake, while intake of healthful foods and nutrients was inversely associated with frequency of fast food restaurant use

- The highest tercile of fast food intake had lower fiber intake and fewer servings per day of fruits and vegetables.

Changes in Fast Food Intake and Changes in Dietary and Behavioral Variables

- Increases in frequency of fast food restaurant use were associated with increases in total energy intake, percent energy from fat, servings of hamburgers, french fries and soft drinks and body weight
- A weight gain of 0.72kg (1.6 lb) over three years above the average weight gain over the three-year period was seen with an increase of one fast food meal per week ($P<0.01$).

Author Conclusion:

The authors concluded that frequency of fast food restaurant use was associated with higher energy and fat intake and greater body weight, and could be an important risk factor for excess weight gain over time.

Reviewer Comments:

Research Design and Implementation Criteria Checklist: Primary Research

Relevance Questions

1.	Would implementing the studied intervention or procedure (if found successful) result in improved outcomes for the patients/clients/population group? (Not Applicable for some epidemiological studies)	Yes
2.	Did the authors study an outcome (dependent variable) or topic that the patients/clients/population group would care about?	Yes
3.	Is the focus of the intervention or procedure (independent variable) or topic of study a common issue of concern to nutrition or dietetics practice?	Yes
4.	Is the intervention or procedure feasible? (NA for some epidemiological studies)	N/A

Validity Questions

1.	**Was the research question clearly stated?**	Yes
1.1.	Was (were) the specific intervention(s) or procedure(s) [independent variable(s)] identified?	Yes
1.2.	Was (were) the outcome(s) [dependent variable(s)] clearly indicated?	Yes
1.3.	Were the target population and setting specified?	Yes
2.	**Was the selection of study subjects/patients free from bias?**	Yes

2.1.	Were inclusion/exclusion criteria specified (e.g., risk, point in disease progression, diagnostic or prognosis criteria), and with sufficient detail and without omitting criteria critical to the study?	Yes
2.2.	Were criteria applied equally to all study groups?	Yes
2.3.	Were health, demographics, and other characteristics of subjects described?	Yes
2.4.	Were the subjects/patients a representative sample of the relevant population?	???
3.	**Were study groups comparable?**	Yes
3.1.	Was the method of assigning subjects/patients to groups described and unbiased? (Method of randomization identified if RCT)	Yes
3.2.	Were distribution of disease status, prognostic factors, and other factors (e.g., demographics) similar across study groups at baseline?	N/A
3.3.	Were concurrent controls used? (Concurrent preferred over historical controls.)	N/A
3.4.	If cohort study or cross-sectional study, were groups comparable on important confounding factors and/or were preexisting differences accounted for by using appropriate adjustments in statistical analysis?	Yes
3.5.	If case control or cross-sectional study, were potential confounding factors comparable for cases and controls? (If case series or trial with subjects serving as own control, this criterion is not applicable. Criterion may not be applicable in some cross-sectional studies.)	N/A
3.6.	If diagnostic test, was there an independent blind comparison with an appropriate reference standard (e.g., "gold standard")?	N/A
4.	**Was method of handling withdrawals described?**	Yes
4.1.	Were follow-up methods described and the same for all groups?	Yes
4.2.	Was the number, characteristics of withdrawals (i.e., dropouts, lost to follow up, attrition rate) and/or response rate (cross-sectional studies) described for each group? (Follow up goal for a strong study is 80%.)	Yes
4.3.	Were all enrolled subjects/patients (in the original sample) accounted for?	Yes
4.4.	Were reasons for withdrawals similar across groups?	Yes
4.5.	If diagnostic test, was decision to perform reference test not dependent on results of test under study?	N/A
5.	**Was blinding used to prevent introduction of bias?**	Yes

5.1.	In intervention study, were subjects, clinicians/practitioners, and investigators blinded to treatment group, as appropriate?	N/A
5.2.	Were data collectors blinded for outcomes assessment? (If outcome is measured using an objective test, such as a lab value, this criterion is assumed to be met.)	N/A
5.3.	In cohort study or cross-sectional study, were measurements of outcomes and risk factors blinded?	Yes
5.4.	In case control study, was case definition explicit and case ascertainment not influenced by exposure status?	N/A
5.5.	In diagnostic study, were test results blinded to patient history and other test results?	N/A
6.	**Were intervention/therapeutic regimens/exposure factor or procedure and any comparison(s) described in detail? Were interveningfactors described?**	Yes
6.1.	In RCT or other intervention trial, were protocols described for all regimens studied?	N/A
6.2.	In observational study, were interventions, study settings, and clinicians/provider described?	Yes
6.3.	Was the intensity and duration of the intervention or exposure factor sufficient to produce a meaningful effect?	Yes
6.4.	Was the amount of exposure and, if relevant, subject/patient compliance measured?	Yes
6.5.	Were co-interventions (e.g., ancillary treatments, other therapies) described?	No
6.6.	Were extra or unplanned treatments described?	No
6.7.	Was the information for 6.4, 6.5, and 6.6 assessed the same way for all groups?	No
6.8.	In diagnostic study, were details of test administration and replication sufficient?	N/A
7.	**Were outcomes clearly defined and the measurements valid and reliable?**	Yes
7.1.	Were primary and secondary endpoints described and relevant to the question?	Yes
7.2.	Were nutrition measures appropriate to question and outcomes of concern?	Yes
7.3.	Was the period of follow-up long enough for important outcome(s) to occur?	Yes
7.4.	Were the observations and measurements based on standard, valid, and reliable data collection instruments/tests/procedures?	Yes
7.5.	Was the measurement of effect at an appropriate level of precision?	???
7.6.	Were other factors accounted for (measured) that could affect outcomes?	Yes

7.7.	Were the measurements conducted consistently across groups?	Yes
8.	**Was the statistical analysis appropriate for the study design and type of outcome indicators?**	Yes
8.1.	Were statistical analyses adequately described and the results reported appropriately?	Yes
8.2.	Were correct statistical tests used and assumptions of test not violated?	Yes
8.3.	Were statistics reported with levels of significance and/or confidence intervals?	Yes
8.4.	Was "intent to treat" analysis of outcomes done (and as appropriate, was there an analysis of outcomes for those maximally exposed or a dose-response analysis)?	No
8.5.	Were adequate adjustments made for effects of confounding factors that might have affected the outcomes (e.g., multivariate analyses)?	No
8.6.	Was clinical significance as well as statistical significance reported?	Yes
8.7.	If negative findings, was a power calculation reported to address type 2 error?	No
9.	**Are conclusions supported by results with biases and limitations taken into consideration?**	Yes
9.1.	Is there a discussion of findings?	Yes
9.2.	Are biases and study limitations identified and discussed?	No
10.	**Is bias due to study's funding or sponsorship unlikely?**	Yes
10.1.	Were sources of funding and investigators' affiliations described?	Yes
10.2.	Was the study free from apparent conflict of interest?	Yes